Service Center GIS Data

Introduction:

USDA has developed a set of standards governing the management of GIS data in Service Centers. These standards identify data geospatial file naming conventions and data location on the Common Computing Environment (CCE) servers. This document includes a description of the type and location of geospatial data that has been distributed to Service Centers in Michigan.

Data Location

All GIS data will reside on the CCE server and can be accessed from any CCE computer by navigating to the ***F:\geodata*** folder. This folder contains a standard set of "thematic" subfolders. That is, the subfolder names each represent a unique "theme" (or subject) which describes the geospatial data stored in that subfolder. For example, if one wanted to access GIS data for roads, one would navigate to the ***F:\geodata\transportation*** subfolder.

The following set of subfolders will reside at every Service Center within Michigan.

air_quality
cadastral
census
climate
common_land_unit
conservation
conservation_practices
cultural_resources
disaster_events
ecological
elevation
endangered_habitat
environmental_easements
geographic_names
geology
government_units
hazard_site
hydrography
hydrologic_units
imagery
land_site
land_use_land_cover
landmarks
map_indexes
measurement_services
ortho_imagery
project_data
public_utilities
soils
topographic_images
transportation
wetlands
wildlife
zoning

Some of these subfolders will contain no data until issued by national data development teams, while other data may be developed locally. These subfolders are a first attempt at anticipating the major themes of data that will be used by Service Center Agencies (SCA). Additional folders will be added in the future.

File Naming

The USDA Standard for Geospatial Dataset File Naming defines the naming convention that is used for geospatial data files. File names will, for the most part, follow this format:

[*theme*]_[*feature type*]_[*geographic location*]

[*theme*] = A short description identifying what geophysical features are represented by the data
[*feature type*] = Data is represented as lines (l), polygons (a), points (p), etc.
[*geographic location*] = Geographic extent of the data, usually state, county FIPS code, or soil survey ID

Example: The ArcView shapefile of state road lines for Clinton County is named **stroads_l_mi037.shp**

Data for each county bordering the service center's "home county" will be included within the standard folder structure. The [*geographic location*] portion of the file name differentiates data layers.

Example: The Fremont Service Center administers both Newaygo and Muskegon Counties. The "transportation" folder on the Fremont server houses the "roads" data for both Newaygo and Muskegon: shapefiles "**allroads_l_mi123.shp**" and "**allroads_l_mi121.shp**".

Many of the available data layers were acquired from the State of Michigan Center for Geographic Information (CGI) or other partners. In an effort to maintain consistency between agencies, the [*theme*] portion of the file names for CGI data layers corresponds to the naming convention originally used by the partner agency.

Other exceptions to the national naming standard that will exist in Michigan are in the case of uncompressed DOQ quarter quads (DOQQ) and Digital Raster Graphics (DRG), which will each be named according to the USGS quadrangle map they represent.

For more information, please refer to the ***Manual for Managing Geospatial Datasets in Service Centers***.

County FIPS Codes: The [*geographic location*] portion of the file name will most often be "mi" followed by the county FIPS code.

Alcona	001	Gratiot	057	Missaukee	113
Alger	003	Hillsdale	059	Monroe	115
Allegan	005	Houghton	061	Montcalm	117
Alpena	007	Huron	063	Montmorency	119
Antrim	009	Ingham	065	Muskegon	121
Arenac	011	Ionia	067	Newaygo	123
Baraga	013	Iosco	069	Oakland	125
Barry	015	Iron	071	Oceana	127
Bay	017	Isabella	073	Ogemaw	129
Benzie	019	Jackson	075	Ontonagon	131
Berrien	021	Kalamazoo	077	Osceola	133
Branch	023	Kalkaska	079	Oscoda	135
Calhoun	025	Kent	081	Otsego	137
Cass	027	Keweenaw	083	Ottawa	139
Charlevoix	029	Lake	085	Presque Isle	141
Cheboygan	031	Lapeer	087	Roscommon	143
Chippewa	033	Leelanau	089	Saginaw	145
Clare	035	Lenawee	091	St Clair	147
Clinton	037	Livingston	093	St Joseph	149
Crawford	039	Luce	095	Sanilac	151
Delta	041	Mackinac	097	Schoolcraft	153
Dickinson	043	Macomb	099	Shiawassee	155
Eaton	045	Manistee	101	Tuscola	157
Emmet	047	Marquette	103	Van Buren	159
Genesee	049	Mason	105	Washtenaw	161
Gladwin	051	Mecosta	107	Wayne	163
Gogebic	053	Menominee	109	Wexford	165
Grand Traverse	055	Midland	111		

Available Data

The following data is available at each USDA Service Center within Michigan for the counties surrounding that location. All data layers may not be available (or applicable) for all locations.

F:\geodata

cadastral

plss_a_ mi[*FIPS*] – PLSS Sections
seccorners_l_mi[*FIPS*] – Section corners
sections_a_mi[*FIPS*] – Section polygons
qsections_a_mi[*FIPS*] – Quarter Section polygons
qqsections_a_mi[*FIPS*] – Quarter-Quarter Section polygons
twnrng_a_mi[*FIPS*] – PLSS Township and Range

census

acub_a_mi[*FIPS*] – Adjusted Census Urban Boundaries
bg2010_a_mi[*FIPS*] – 2000 US Census Block Groups
blk2010_a_mi[*FIPS*] – 2000 US Census Blocks
cdp_a_mi[*FIPS*] – Census defined places (miscellaneous)
faub_a_mi[*FIPS*] – Federal Aid Urban Boundaries
tract2010_a_mi[*FIPS*] – 2000 US Census Tracts

climate

precipitation

precip_a_mi.shp – Average annual precipitation (statewide)
precip[*MONTH*]_a_mi.shp – Average monthly precipitation (statewide)

temperature

tempmax_a_mi.shp – Average maximum temperature (statewide)
tempmin_a_mi.shp – Average minimum temperature (statewide)

common_land_unit

clu_copy_a_mi[*FIPS*] – FSA Common Land Units: SCA-accessible copy
wet_copy_p_ mi[*FIPS*] – FSA Wetland Points: SCA-accessible copy

fsa_clu

clu_a_mi[*FIPS*] – FSA Common Land Units: Development copy
wet_p_ mi[*FIPS*] – FSA Wetland Points: Development copy

ecological

319_CMI_Watersheds – Watersheds with 319/CMI plans - MDEQ (statewide)
ecoreg100 – Ecoregions of Michigan – MNFI (statewide)
tmdl_impaired_watersheds – Watersheds with approved Total Maximum Daily Load for nutrients and/or sediments – MDEQ (statewide)

elevation

ned_mi[*FIPS*] – National Elevation Data Digital Elevation Model (Arc GRID format)

environmental_easements

wrp_a_mi[*FIPS*] – Approximated Wetland Reserve Program (WRP) easement boundaries.

government_units

city_a_mi[*FIPS*] – Cities
congress_a_mi[*FIPS*] – U.S. Congressional District boundaries
county_a_mi[*FIPS*] – County boundary
gdw_county – County boundaries for entire U.S. - Required for FSA programs
house_a_mi[*FIPS*] – Michigan House of Representatives District boundaries
isd_a_mi[*FIPS*] – Intermediate school districts
locbnds_l_mi[*FIPS*] – Local political boundaries

government_units\ (continued)

mcd_a_mi[*FIPS*] – Minor civil divisions (as polygon features)
mcd_l_mi[*FIPS*] – Minor civil divisions (as line features)
mcd_p_mi[*FIPS*] – Minor civil divisions (as points)
postal_dm_a_mi – ZIP Code boundaries by county (statewide)
postal_dm_p_mi – ZIP Code centroid points (statewide)
school_a_mi[*FIPS*] – School districts
senate_a_mi[*FIPS*] – Michigan Senate District boundaries
township_a_mi[*FIPS*] – Township government boundaries
village_a_mi[*FIPS*] – Villages

hydrography
femaq3_a_mi[*FIPS*] – FEMA Q3 flood data (for available counties)
grtlks_proximity_a_mi – Distance in miles to Great Lakes shoreline (statewide)
hydro_l_mi[*FIPS*] – Hydrography lines
hydro_a_mi[*FIPS*] – Hydrography polygons

hydrologic_units
huc8_a_mi[*FIPS*] – State-developed 8 digit watersheds (Level 4)
huc10_a_mi[*FIPS*] – State-developed 10 digit watersheds (Level 5)
huc12_a_mi[*FIPS*] – State-developed 12 digit watersheds (Level 6)
wbd12_a_mi – Certified NRCS 12 digit watersheds (statewide)
wbd12_a_[*HUC8*] – Certified NRCS 12 digit watersheds by HUC8 sub-basin
wbd8_a_mi[*FIPS*] – NRCS 8 digit watersheds which intersect "[*FIPS*]" county
wbd10_a_mi[*FIPS*] – NRCS 10 digit watersheds within the extent of "wbd8_a_mi[*FIPS*]"
wbd12_a_mi[*FIPS*] –NRCS 12 digit watersheds within the extent of "wbd8_a_mi[*FIPS*]"

imagery

35mm_slides
Scanned FSA 35mm compliance slide images, organized by county\township\section\year **(Where available)**

compliance_fsa (2 meter resolution imagery, not ortho-quality)
naip_1-1_2n_mi[*FIPS*]_[*YEAR*]_1 – Quarter-quad polygons which correspond to the original NAIP TIFF images. "IDAT" attribute denotes imagery flight date.
naip_1-1_2n_s_mi[*FIPS*]_ [*YEAR*]_1 – 2 meter NAIP county mosaics

Legacy_Master_Photos
Scanned and roughly georeferenced FSA master photos, organized by county

land_site
waterwells_p_ mi[*FIPS*] – Water wells

land_use_land_cover
lulc78_a_mi[*FIPS*] – MDNR MIRIS 1978 land use/land cover
nlcd_mi_utm[*ZONE*] – 1992 National Land Cover Dataset (State and Area Office Servers)
IFMAP_[*lp/up*]_landcover – 2001 MDNR IFMAP land cover (State and Area Office Servers)
presettle_veg_a_mi[*FIPS*] – C1800 pre-settlement vegetation

map_indexes
qquads_a_mi[*FIPS*] – County-based 3.75 minute quadrangle boundaries
quads12k_a_mi – 1:12,000 3.75 minute quarter quad polygons (statewide)
quads24k_a_mi – 1:24,000 7.5 minute quad polygons (statewide)
quads25k_a_mi – 1:25,000 7.5 minute quad polygons (statewide)
quads100k_a_mi – 1:100,000 30 x 60 minute quad polygons (statewide)
quads1deg_a_mi – 1 degree quad polygons (statewide)
quads250k_a_mi – 1:250,000 1 x 2 degree quad polygons (statewide)

ortho_imagery

ortho[x-x]_mi[*FIPS*] – Compressed DOQ county mosaic (C1993 B/W or C1998 CIR)

ortho_1-1_1n_mi[*FIPS*]_[*YEAR*]_1 – Quarter-quad polygons which correspond to the original NAIP TIFF images. "IDAT" attribute denotes imagery flight date.

ortho_1-1_1n_s_mi[*FIPS*]_ [*YEAR*]_1 – NAIP county mosaics (certified as ortho-quality)

project_data

fsa

FSA-specific files, including CRP GIS projects and soil rental rate datasets.

nrcs

NRCS-specific files, including Toolkit templates, ArcGIS customizations, certified wetland determination data and documentation, etc.

rcd

RC&D-specific project files and data.

rd

RD-specific project files and data.

swcd

SWCD-specific project files and data.

public_utilities

whpas – Wellhead protection areas – MDEQ (statewide)

soils

cra_a_mi – Common Resource Areas (statewide)

li_a_[*STSSAID*] – Leaching index data used by nleach lyr files

nleach_risk_[*STSSAID*] – Nitrate leaching risk with set symbology – Uses li_a shapefiles

soilmu_a_[*STSSAID*] – SSURGO map units as polygons **(Where available)**

soilmu_l_[*STSSAID*] – SSURGO map units as lines **(Where available)**

soilmu_p_[*STSSAID*] – SSURGO map units as points **(Where available)**

soilsf_l_[*STSSAID*] – SSURGO special features lines **(Where available)**

soilsf_p_[*STSSAID*] – SSURGO special features points **(Where available)**

soilsa_a_[*STSSAID*] – SSURGO soil survey area boundary **(Where available)**

soil_d_[*STSSAID*] – MS Access soils database for use with Soil Data Viewer, Win-PST, etc.

soil_[STSSAID] - Subfolder structure required by national geodata storage guidelines

spatial

Hard links to SSURGO spatial datasets listed above

tabular

Hard link to SSURGO MS Access database listed above

topographic_images

[*QUADNAME*].TIF – 1:24,000 scale USGS DRG images (collar stripped – no margins)

C[*lat0long*][E/A1].TIF – 1:250,000 scale USGS DRG images

F[*lat0long*][E/A1].TIF – 1:100,000 scale USGS DRG images

drg_i_mi[*FIPS*] – ArcView image catalog for 1:24,000 DRG files

drg_s_mi[*FIPS*] – MrSID county mosaic of 1:24,000 DRG

transportation

allroads_l_mi[*FIPS*] – All roads

railroad_l_mi[*FIPS*] – Railroads

stroads_l_mi[*FIPS*] – State roads

street_dm_l_[*STATE*][*FIPS*] – All roads **(Out of state counties only)**

wetlands

loss_by_county – Relative wetland loss since C1800 by county – MNFI (statewide)

nwi_a_mi[*FIPS*] – FWS National Wetland Inventory wetlands

Spatial Data File Types

Geospatial data layers will generally consist of either **shapefiles** or **images**, which, in turn, are composed of multiple files. (Let's call them "component files").

For example, the **shapefile** "county_a_mi037" is actually made up of three different files: "county_a_mi037.shp", "county_a_mi037.dbf", and "county_a_mi037.shx". Similarly, the DOQ mosaic **image** "ortho1-1_mi037" might be composed of the files "ortho1-1_mi037.sid" and "ortho1-1_mi037.sdw".

Each of these individual "component files" must exist in the same location on your computer, and retain the same "left of the dot" name in order for the theme to be used.

Shapefile component files

Every shapefile will be composed of the following three files:
.shp – Feature geometry
.shx – Feature geometry index
.dbf - Dbase file containing feature attribute data (ArcView table)

Additionally, the following file types may also exist:
.**sbn** and **.sbx** – Spatial index of features
.ain and **.aix** – Attribute index for active fields in a table
.prj - Map projection information (Used by ArcGIS)

Image component files

Images (rasters) differ from shapefiles in that they are sometimes composed of just two files: one data file containing a blanket-like coverage of the image data, and either a "world file" which identifies what location on the face of the Earth that "blanket" covers, or a "header file" which contains info describing the image data.

Depending on image format, the following file types may exist:

GeoTIFF format:	MrSID format:
.tif – data file	**.sid** – data file
.tfw – world file	**.sdw** – world file

Binary sequential (BSQ), interleaved by pixel (BIP), interleaved by line (BIL) formats:
.bsq/**.bip**/**.bil** – data file
.hdr – header file

Depending on the type of and history of the raster dataset, the following files may also be present:

.**aux** – Auxiliary files store information that can not be stored within the raster data. This may include raster statistics, pointers to pyramids, colormaps, projection information, etc.
.rrd – Pyramid files contain information to help the raster file display faster within ArcGIS